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# DEPARTMENT OF TRANSPORTATION STATE OF HAWAII

# MOTORCYCLE HELMET USE LITERATURE REVIEW

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September 2003

# Department of Transportation
# Hawaii Highway Safety Social Marketing Program
# Sub-Section: Motorcycle Helmets

## Summary of Existing Information

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# I. PLANNING OVERVIEW

## Objective

The objective of this phase of the project is to identify what types of research & social marketing programs have been done in Hawaii, the US and the world that will provide additional insight into programs/actions that will encourage motorcyclists to wear helmets that have met safety standards.

## Target Segments

Based on the literature review the target group that will be further explored is comprised of the following:

- All Motorcyclists

With the low rate of helmet usage in Hawaii, deaths resulting from motorcycle accidents are among the highest in the nation. In addition, some helmeted riders may not be aware that their head protection does not meet proper safety standards. Given the data available there appears to be no specific demographic that distinguishes helmet wearers from non-helmet wearers.

We will also consider whether the research should focus on the additional group below:

- Motorcycle Passengers

This segment is equally susceptible to risks when riding on the back of a motorcycle.

## Next Steps

Areas that require additional examination of the target groups through the telephone survey and focus groups are as follows:

- Awareness of FMVSS 218 standards
- Attitudes regarding helmet use
- Reasons why riders wear a helmet
- The rider's knowledge of helmet benefits
- Perceived causes and effects of motorcycle accidents
- The level of motorcycle training
- Whether or not the rider is licensed and/or insured
- Gender and age of noncompliant riders

## II. INTRODUCTION

In 2002, motorcycle accidents accounted for 3244 deaths in the United States. According to the National Highway Traffic Safety Administration (NHTSA), there are more than thirty million motorcycle riders in the U.S. Eighty percent of riders involved in a crash will be killed or suffer an injury. Head injuries are the leading cause of death in motorcycle accidents, and riders without helmets are 40 percent more likely to sustain a fatal head injury.

The NHTSA is an entity within the Department of Transportation that is responsible for establishing guidelines and regulations designed to reduce deaths and injuries from automobile and motorcycle crashes. The NHTSA recommends that motorcyclists wear full-protective gear, stressing that properly constructed helmets designed to protect the head and brain are a critical element of motorcycle safety.

The results in a myriad of reports in the U.S. indicate that helmet use decreases the severity of head injuries, the likelihood of the accident leading to fatalities, the intensity of medical care, and health costs. In the event of a crash, helmets are effective in preventing brain injuries, which are more likely to require long-term treatment and may result in a lifelong disability. A motorcyclist who is not wearing a helmet is three times more likely than a helmeted rider to suffer a traumatic brain injury as a result of a crash.

The NHTSA estimates that helmets reduce the risk of death in a motorcycle crash by 29 percent and the risk of fatal head injury by 40 percent. The reduction in risk of nonfatal injury is estimated to be 15 percent. However, in states where helmet use is not mandatory, only about 34 to 54 percent of motorcyclists wear helmets. Helmet use is near 100 percent when a law requiring all motorcyclists to wear helmets is implemented.

As an effective countermeasure to motorcycle injuries, helmets need to meet certain safety standards. The Department of Transportation requires motorcycles helmets sold in the US to meet the Federal Motor Vehicle Safety Standard 218 and some states require riders to use helmets that comply with and have passed the FMVSS 218 testing procedure. An average of 50 percent of motorcyclists wear helmet voluntarily even if their state does not have a helmet use law. However, some riders will knowingly or unknowingly wear helmets that do not meet the FMVSS 218 requirements. These helmets, produced and sold as "novelty" helmets, do not have the requisite DOT sticker and violate state laws where helmets or limited use laws are in effect.

## III. RESEARCH ON HELMET USE

Most research on helmet use in the United States is conducted by the NHTSA, although several states have conducted independent case studies, especially those that have repealed their mandatory helmet use law in recent years. Much of the available literature highlights the following two facts. An April 2003 report from the National Highway Traffic Safety Administration (NHTSA) revealed a 60% increase in motorcycle death rates overall in the past five years. The most recent National Occupancy Protection Use Survey indicates that from 2000 to 2002, motorcycle helmet use decreased from 71% to 58% nationally.

Published data on motorcycle helmet use falls into three primary categories indicating that use of proper protective headgear will:
(1) decrease the severity of head injuries
(2) decrease the fatalities resulting from crashes, and
(3) decrease overall health costs.

*Head injuries – Key Facts*

- The use of the safety helmet is the single critical factor in the prevention of reduction of head injury; the safety helmet which complies with FMVSS 218 is a significantly effective injury countermeasure.
- The likelihood of injury is extremely high in these motorcycle accidents-98% of the multiple vehicle collisions and 96% of the single vehicle accidents resulted in some kind of injury to the motorcycle rider; 45% resulted in more than a minor injury.
- Sixty-six percent of the motorcyclists referred to the Brain and Spinal Cord Injury Unit in Florida between July 1, 1996 and December 31, 1997 were not wearing helmets.
- Helmeted riders and passengers showed significantly lower head and neck injury for all types of injury, at all levels of injury severity.
  Source: NHTSA; Hurt Report

*Fatalities – Key Facts*

- In 1998, almost 50 percent of motorcycle drivers killed in crashes were not wearing a helmet. Of the motorcycle passengers who died in crashes, 55 percent were not wearing a helmet.
- Motorcycle helmets saved the lives of an estimated 500 motorcyclists in 1998. An additional 307 lives could have been saved if all motorcyclists had worn helmets.
- Helmets reduce the risk of death by one-third and are 67 percent effective in preventing brain injuries to motorcycle riders.

Health costs, long-term care and disability

The basic premise of research in this area is that hospital costs for unhelmeted riders involved in accidents are much higher that for helmeted riders because the cost for patients with traumatic brain injuries (TBI) is more than twice than the cost for other injuries. A TBI is the most severe of type of injury experienced as a result of a crash, and it may lead to sustained or long-term impairment of cognitive abilities, physical functioning, and psychosocial disorders, causing significant consequences to one's quality of life *(The Brain Injury Association, Inc. Alexandria, VA.).*

- The average hospital charge for motorcyclists with serious head injuries was found to be almost three times that of motorcyclists with mild or no head injuries, $43,214 vs. $15,528 (Orsay).
- The costs associated with treating motorcycle riders head injuries have been demonstrated to be significantly reduced - up to 80 percent in one university study - when helmet laws are in effect (AAOS).
- Numerous studies have shown that in cases involving motorcyclists who were not wearing helmets, head injuries were more severe, requiring longer, more expensive hospitalization and rehabilitation. Moreover, it has been shown that the public at large bears a major portion of these increased costs, both in the cases where the injured patients' insurance does not cover all the costs associated with care and through the increasing cost of medical insurance premiums (AAOS).

There are a number of medical organizations (doctors, nurses, managed care) who have issued position statements endorsing helmet use in order to reduce TBI incidents resulting from motorcycle crashes.

While there is a notable lack of research regarding motorcycle helmet use, motorcyclists habits, and public awareness campaigns, research regarding bicycle helmet use and campaigns against impaired driving are more readily available. These may have components that may be useful to helmet use research and campaigns. (See appendix)

**State Case Studies:**

There are currently 20 states (and the District of Columbia) that have comprehensive motorcycle helmet laws in place requiring helmet use by all riders. Twenty-seven states require helmet use for certain riders, usually these under age 18. There is no mandatory helmet use legislation in place in Illinois, Iowa, and Colorado.
Several states have published the results of case studies conducted and goals for vehicle safety in their state. Specific data are limited, but the following facts regarding helmet use are published and appear on-line in several places:

- In 1997, Arkansas and Texas repealed all-rider helmet laws. As of May 1998, helmet use fell from 97% in both states to 52% in Arkansas and 66% in Texas.

Motorcycle operator fatalities increased by 21% in Arkansas and 31% in Texas (NHTSA, 2000).

- In 1992, the first year of California's all-rider motorcycle helmet law, 327 motorcyclists died in traffic crashes, compared to 512 in 1991 - a 36% reduction in fatalities in one year. Additionally, the number of hospitalized brain-injured motorcyclists fell by over 50%, from 1,258 in 1991 to 588 in 1992 (California Highway Patrol, 1999; Trauma Foundation, 2002).
- After passage of Maryland's all-rider motorcycle helmet law in 1992, motorcyclist deaths dropped dramatically - 20% in 1993 and 30% from 1993-1994 (Maryland Department of Transportation).
- Since 1989, six states (California, Maryland, Oregon, Nebraska, Texas, and Washington) enacted all-rider helmet use laws (Texas has since repealed the law). In Oregon, there was a 33% reduction in motorcycle fatalities the year after the helmet law was re-enacted. Nebraska experienced a 32% reduction in fatalities the first year of its law. Texas experienced a 23% reduction in fatalities; Washington, a 15% reduction; California, a 37% reduction; and, Maryland, a 20% reduction (NHTSA, 2001).
- In 1998, a University of South Florida study of motorcycle use found that the incidence of helmet use was 99.5%, but that 40% of the observed motorcyclists used non-compliant (novelty) helmets.

Hawaii:

Observational findings are available from several studies conducted by the University of Hawaii for the Hawaii Department of Transportation. NHTSA studies indicate that the numbers of deaths resulting from motorcycle accidents in Hawaii are among the highest in the nation. However, in the 2002 UH study, overall helmet use in the State is estimated at 43%, up considerably from 27% in 1995, but close to 44% usage in 1999.

Oahu has the highest use rate (47.9) and Kauai the lowest (22.1). On all islands the following holds true: riders are more likely to wear helmets at higher speeds, on freeways, and on weekdays. Weather conditions do not appear to affect rider's decision to wear a helmet as the study indicates that helmet use is similar under sunny cloudy and partly cloudy conditions.

## Most-likely to Get Into Accidents

In 1981, Harry Hurt, a researcher at the University of Southern California, received funding from the NHTSA to conduct a study of over 4,000 motorcycle accidents. Findings from the report indicate that riders between the ages of 16 and 24 and female riders were seriously overrepresented in the data. Craftsmen, laborers, and students comprise most of the accident-involved motorcycle riders. The motorcycle riders involved in accidents are essentially without training; 92% were self-taught or learned from family or friends. Also overrepresented were riders with previous recent citations or accidents.

## IV. BEST PRACTICES FOR HELMET USE

As previously noted, the majority of information available regarding helmet use concurs on two facts: helmet use is the single most important factor in preventing death and head injury to motorcyclists, and helmets reduce the risk of death by 29% and are 67% effective in preventing brain injuries to motorcycle riders However, there is only limited information regarding WHO is using helmets, WHEN they are being used, and WHAT TYPE of helmets are being used.

Based on the premise that helmets save lives, the Department of Transportation developed legislation that requires motorcycles all helmets sold in the US to meet the Federal Motor Vehicle Safety Standard 218. Although no "List of DOT-Approved Helmets" is available, information on helmets that have been tested for FMVSS 218 compliance is available on-line. Unfortunately, there is an increasing number of helmets being sold in the U.S. as novelty helmets that do not provide adequate protection.

According to the NHTSA, results of a study conducted in Florida indicate an increase in the use of noncompliant helmets. NHTSA's NOPUS survey found that noncompliant helmet use equated to 14 percent in 2000 and 2002 respectively. Noncompliant helmets in the marketplace have a negative impact on the enforceability of FMVSS No. 218 for law enforcement officers, on safety for the users, and on economics for the manufacturers of compliant helmets.

Information on helmets that have been tested for FMVSS 218 compliance is available on-line. Interestingly, website from motorcycle retailers appear to offer the most details with respect to the type of helmets available, individual preferences and benefits for the rider.

Information from a Colorado motorcycle dealer includes the following:

The choice to wear, or not to wear, a helmet is a very personal and emotional decision. Debating the relative advantages and disadvantages of helmets is far too complex and political for this site, so no attempt will be made in this arena. Suffice it to say, however, if you have decided that you want to wear a helmet, or if you live in a state that requires you to wear a helmet, it is important that you select the right helmet for your needs and that you select the right size of helmet for your head. Keep in mind that different helmets by different manufactures come with different safety and comfort features. Many helmets come with vents that promote flow-through ventilation and keep the wearer cool in hot weather. Some helmets are made out of fiberglass; others are made out of more advanced and exotic materials. Ask a motorcycle representative to explain all of the various features found in the helmet that you select.

Helmets come in 5 primary styles, each of which offers relative benefits and disadvantages:

- "Beanie" Helmets
- Half Helmets
- Three-Quarter Helmets
- Full-Face Helmets
- Convertible Helmets

Rocky Mountain Harley-Davidson, Littleton Colorado, www.rmh-d.com

## V. REASONS MOTORCYCLIST DON'T WEAR HELMETS

Research on rider's attitudes is scarce and many of the reasons they object to wearing helmets or enacting helmet use laws is available directly from the riders and riders' organization through their websites. In general, their objections focus on a perceived manipulation of injury and fatality statistics by the NHTSA and individual states. While the widely disseminated Hurt Report found that helmets did not obstruct vision or hearing while riding, experienced drivers have stated a reduction in peripheral vision and the ability to hear nearby traffic is a primary danger of helmet use.

Some groups opposing helmet use laws have published literature and presented their position before Congress, stating that the protection to the brain provided by helmets is outweighed by the risk of injury to the neck. A study by Jonathan Goldstein (Bowdoin College) is often quoted to oppose the NHTSA facts. In addition, they debate commonly quoted medical cost figures and "challenge the 'social burden' of the medical costs argument. They contend that this rationale is not persuasive because motorcycles represent a very small percentage of the vehicles in accidents nationwide" (National Conference of State Legislatures – Motorcycle Safety 2001).

RIDERS' ARGUMENT AGAINST HELMETS; KEY FACTS

- "WARNING: No protective head gear can protect the wearer against foreseeable impacts. This helmet is Not designed to provide neck or lower head protection. This helmet exceeds Federal Standard FMVSS218: Even so, death or severe injury may result from impacts at speeds as low as 15 mph while wearing a helmet" (Label inside new helmet, 1990).
- "It is concluded that: 1) motorcycle helmets have no statistically significant effect on probability of fatality and 2) past a critical impact speed, helmets increase the severity of neck injury" (Dr. Jonathan Goldstein, Bowdoin College).
- "Now let's look at helmets, and I own 3 different kinds. Helmets come in sizes small, medium, large and one-size-fits-all. I ask you, if all shoes were made in sizes small, medium, large and one-size-fits-all, how many people in this room would be wearing a shoe that fits." Testimony of Twyla Gab to South Dakota House Transportation Committee February 1993 Regarding Mandatory Helmet Laws
- States are run by their interest in financial gain, not public safety. Quote following the above testimony of Ms. Gab: Jeff Stingley who is Secretary of Commerce stated during the hearing, in answer to a question by Representative Volesky, that the bill would not have been introduced at all if there would not be the diversion of highway funds for education imposed by the feds.

It is important to note that several motorcyclists' organizations including the American Motorcyclists Association and Alliance of Bikers Aimed Toward Education (A.B.A.T.E.), while opposing mandatory use laws, publicly "acknowledge that a motorcycle helmet is a legitimate piece of safety equipment" and support voluntary helmet use.

## VI. ENCOURAGING HELMET USE

Information regarding public awareness campaigns is limited and again, is provided primarily by the NHTSA. Although several states have published their motorcycle safety goals, they offer very few details regarding specific strategies, campaigns, actions or results. The NHTSA site offers the following:

> While some States have chosen not to enact helmet laws for all riders, NHTSA will continue to work with the motorcycling, traffic safety, and health communities to educate and promote the voluntary use of helmets which meet FMVSS No. 218, along with the use of other types of personal protective gear as the last line of defense against serious injury for crash-involved motorcyclists. Wearing protective gear is the best weapon against injury when a crash does occur, but many motorcyclists continue to ride with improper attire and non-compliant helmets or no helmet at all.
>
> As part of a nationwide protective gear campaign, NHTSA will develop consumer information to better inform motorcyclists of the characteristics of compliant helmets and the lack of safety provided by noncompliant helmets. However, not all motorcyclists are the same. As such, an important component to this national protective gear public information and education will be to develop messages for the various segments of the motorcycling population. For example, messages may be developed for the population of motorcyclists who prefer to ride cruisers, touring, or sport bikes.

> Meanwhile, NHTSA will work with appropriate national, state, and local law enforcement organizations to train law enforcement officers to identify noncompliant helmets while also developing training for judges and prosecutors to adjudicate helmet law violations. However, this task will prove challenging. Enforcing helmet laws that reference or incorporate FMVSS No. 218 have been difficult for local and state law enforcement officers to enforce. The agency has received many complaints from law enforcement agencies across the country regarding officers' inability to prove a helmet is noncompliant under state law due to the accessibility of counterfeit DOT stickers. NHTSA will continue to provide technical assistance to states, when requested, with regard to legislation and laws relating to compliant helmet use.

The National Agenda for Motorcycle Safety (NAMS) includes detailed objectives and an action plan for specific elements of the plan including education, automobile driver awareness and protective gear. The following is an excerpt from the NAMS plan:

All motorcyclists should choose to wear protective apparel because they understand that such apparel can reduce injuries in a crash. All motorcyclists should want to wear FMVSS 218 compliant helmets while riding to reduce head trauma resulting from a crash. Motorcyclists should understand the critical nature of apparel and how it provides comfort, in addition to protection, while riding. Their choices in apparel should be based on promotion from all motorcycle safety organizations, groups, clubs, other stakeholders, and the motorcycle industry. In states where there are helmet laws, law enforcement personnel should know how to identify FMVSS 218 compliant helmets.

## HOW TO GET THERE

A wide-reaching platform or forum is needed from which motorcyclists can be informed about the benefits of protective gear and provided with information about various available technologies (see Conveying Research Information to Users, page 13). At these forums, motorcyclists would gather information about new technologies and their effectiveness to aid in making informed apparel choices. This is an area where the technology is changing rapidly.

The motorcycle community and other stakeholders need to create more education programs for motorcyclists to understand the benefits of FMVSS 218 compliant helmets. This information should also include facts to repudiate misinformation about unfounded dangers of helmet use. Stakeholders should find ways to more effectively communicate the benefits of helmet use and work toward making voluntary use of FMVSS 218 compliant helmets more widely accepted. The dangers of non-compliant helmets should also be communicated by similar means.

Mandatory helmet-use laws should specify the use of FMVSS 218 compliant helmets. Motorcyclists and traffic law enforcement officials should be educated in how to determine if a helmet meets FMVSS 218. Revisions to FMVSS 218 should aid in identification of FMVSS 218 compliant helmets and elimination of non-compliant helmets.

Additional research is needed into all of these issues. Standards should be developed based on research to help consumers make informed choices. The effectiveness of personal protective equipment would be investigated as part of any crash research.

*Personal Protective Equipment*

Additional Objectives of the NAMS Plan include:

**Personal Protective Equipment:**

- Educate motorcyclists about the value of protective apparel by providing an information source on related research and a forum for the exchange of information

- Find ways to more effectively communicate the benefits of helmet use and work toward making voluntary use of FMVSS 218 compliant helmets more widely accepted
- Use effective strategies to ensure that all helmets in use meet FMVSS 218
- Revise FMVSS

**Motorcyclist Attitudes:**

- Study factors that shape motorcyclists' attitudes and behaviors and how they affect crash involvement
- Using information about how motorcyclists form attitudes about safety issues, create programs that reduce dangerous behavior and reinforce safety behavior

**Rider Education:**

- Expand motorcycle safety programs to accommodate all who need or seek training
- Conduct uniform follow-up research into the effectiveness and impact of rider education and training
- Merge rider education and training into licensing functions to form one-stop operations

## VII. CONCLUSION

Eighty percent of motorcyclists involved in crashes are either killed or injured. Half of the motorcycle drivers killed in accidents in 1998 were not wearing helmets. Motorcyclists groups support voluntary use of protective helmets and other gear. Nevertheless, on average, only 54% of riders in the United States choose to wear helmets.

The NHTSA and the NAMS are leading the way by highlighting the importance of informing riders of the benefits of helmet use. However, there appears to be a lack of necessary information regarding motorcycle riders and their habits. While the Hurt report offered detailed information regarding riders and factors involved in motorcycle accidents, it was published 20 years ago.

Some states have initiated public awareness campaigns, but data on riders by age, race, and socio-demographic groups is not available. Knowing the different reasons or barriers to helmet users among sub-groups is likely to increase the value of awareness efforts. However, given Hawaii's unique demographics, lessons learned in other areas may not apply across the board here.

Sound and successful programs will require more detailed demographic data on riders, specific information on when and how accidents occur, riders' habits and their propensity to be involved in crashes. Surveys and other instruments will provide

information that can be used to plan and evaluate a state intervention to reduce injuries and deaths and to meet Hawaii's health objectives.

Studies should be based on motorcycle safety from the motorcyclists' perspectives. It is important to measure their knowledge and awareness in the following areas (keeping in mind that a significant percentage of riders involved in accidents are unlicensed, uninsured, and under the effect of alcohol or other substances):

- Licensed and/or insured
- Awareness or disregard for law
- Gender and age
- Trained or untrained: affect of training on riding or helmet use
- Perception of the primary causes of motorcycle accidents
- Knowledge of helmet benefits
- Attitudes regarding helmet use
- Awareness of FMVSS 218 standards, attitudes regarding compliance
- Reasons for use: commuting, on the job, pleasure, personal errands, etc.

The desired message is clear: helmets save lives. In order to effectively impart the message to riders, it will be important to know where they usually obtain information about motorcycles. Do they read industry magazines, (*Motorcycle Cruiser*, *Easy Rider*, *Sister Cycle*, etc.) or watch motorcycle programs (*Born to Ride*, *American Chopper*, etc.)?

## APPENDIX A: LIST OF KEY POINTS (NHTSA and others)

1. In 1998, 500 motorcyclists lives were saved due to helmet usage; 307 could have been saved. (webbikeword.com)
2. Voluntary safety helmet use by those accident-involved motorcycle riders was lowest for untrained, uneducated, young motorcycle riders on hot days and short trips. (Hurt)
3. Sixty-six percent of the motorcyclists referred to the Brain and Spinal Cord Injury Unit in Florida between July 1, 1996 and December 31, 1997 were not wearing helmets
4. Surveys have shown that helmet use is essentially 100 percent in places with all-rider motorcycle helmet laws compared to 34 to 54 percent at locations with no helmet laws or with age-specific helmet laws. All-rider laws significantly increase helmet use because they are easy to enforce due to the rider's high visibility. (NHTSA, 1999)
5. Motorcycle helmets saved the lives of an estimated 500 motorcyclists in 1998. An additional 307 lives could have been saved if all motorcyclists had worn helmets. (NHTSA, 1999)
6. In 1998, almost 50 percent of motorcycle drivers killed in crashes were not wearing a helmet. Of the motorcycle passengers who died in crashes, 55 percent were not wearing a helmet. (NHTSA, 1999)
7. According to a California study, helmet use is the single most important factor in preventing death and head injury to motorcyclists. (McLoughlin, 1990)
8. The average hospital charge for seriously head-injured motorcyclists was found to be almost three times that of motorcyclists without head injuries, $43,214 v. $15,528. (Orsay, et al., 1994)
9. After passage of Maryland's all-rider helmet law in 1992, motorcyclist deaths dropped dramatically–20 percent in 1993 and 30 percent from 1993 to 1994. (Maryland Department of Transportation, 1997)
10. An estimated $12.1 billion was saved from 1984 through 1998 because of motorcycle helmet use. An additional $10.4 billion could have been saved if all motorcyclists had worn helmets. (NHTSA, 1999)
11. Without a helmet law only about 34 to 54 percent of motorcyclists wear helmets. Helmet use is near 100 percent when a law requiring all motorcyclists to wear helmets is implemented. (hwysafety.org)
12. Helmet use laws also may lead to a decline in motorcycle thefts, possibly because some potential thieves don't have helmets, and not wearing a helmet would attract police notice. In Germany dropped 60% after use laws were enacted. (hwysafety.org)
13. "Numerous studies have shown that formal motorcycle education and training is not an effective loss reduction strategy," state authors of a 1989 Traffic Injury Research Foundation of Canada report.

## APPENDIX B: The "Hurt" Study

# Motorcycle Accident Cause Factors and Identification of Countermeasures

**The "Hurt" Study**

*Motorcycle Accident Cause Factors and Identification of Countermeasures, Volume 1: Technical Report, Hurt, H.H., Ouellet, J.V. and Thom, D.R., Traffic Safety Center, University of Southern California, Los Angeles, California 90007, Contract No. DOT HS-5-01160, January 1981 (Final Report)*

The Hurt study, published in 1981, was a ground-breaking report on the causes and effects of motorcycle accidents. Although more than 15 years old at this time, the study still offers riders insight into the statistics regarding motorcycle accidents and tips on safer riding. With funds from the National Highway Traffic Safety Administration, researcher Harry Hurt (from which the study gets its common name) of the University of Southern California, investigated almost every aspect of 900 motorcycle accidents in the Los Angeles area. Additionally, Hurt and his staff analyzed 3,600 motorcycle traffic accident reports in the same geographic area

**As Harry Hurt, who has done more independent research than anybody in this area, remarked: "Don't worry if you are wearing a helmet with a chin bar. Worry if you're not."**

Some relevant findings:

1. Most motorcycle accidents involve a short trip associated with shopping, errands, friends, entertainment or recreation, and the accident is likely to happen in a very short time close to the trip origin.
2. Sixty percent of the motorcyclists were not wearing safety helmets at the time of the accident. Of this group, 26% said they did not wear helmets because they were uncomfortable and inconvenient, and 53% simply had no expectation of accident involvement.
3. Motorcycle riders in these accidents were significantly without motorcycle license, without any license, or with license revoked.
4. The likelihood of injury is extremely high in these motorcycle accidents-98% of the multiple vehicle collisions and 96% of the single vehicle accidents resulted in some kind of injury to the motorcycle rider; 45% resulted in more than a minor injury.
5. Approximately 50% of the motorcycle riders in traffic were using safety helmets but only 40% of the accident-involved motorcycle riders were wearing helmets at the time of the accident.
6. Voluntary safety helmet use by those accident-involved motorcycle riders was lowest for untrained, uneducated, young motorcycle riders on hot days and short trips.
7. The most deadly injuries to the accident victims were injuries to the chest and head.
8. The use of the safety helmet is the single critical factor in the prevention of reduction of head injury; the safety helmet which complies with FMVSS 218 is a significantly effective injury countermeasure.
9. Safety helmet use caused no attenuation of critical traffic sounds, no limitation of precrash visual field, and no fatigue or loss of attention; no element of accident causation was related to helmet use.

10. FMVSS 218 provides a high level of protection in traffic accidents, and needs modification only to increase coverage at the back of the head and demonstrate impact protection of the front of full facial coverage helmets, and insure all adult sizes for traffic use are covered by the standard.
11. Helmeted riders and passengers showed significantly lower head and neck injury for all types of injury, at all levels of injury severity.
12. The increased coverage of the full facial coverage helmet increases protection, and significantly reduces face injuries.
13. There is not liability for neck injury by wearing a safety helmet; helmeted riders had less neck injuries than unhelmeted riders. Only four minor injuries were attributable to helmet use, and in each case the helmet prevented possible critical or fatal head injury.

## MOST LIKELY TO GET INTO MOTORCYCLE ACCIDENTS

1. Motorcycle riders between the ages of **16 and 24** are significantly overrepresented in accidents; motorcycle riders between the ages of 30 and 50 are significantly underrepresented. Although the majority of the accident-involved motorcycle riders are male (96%), the female motorcycles riders are significantly overrepresented in the accident data.
2. Craftsmen, laborers, and students comprise most of the accident-involved motorcycle riders. Professionals, sales workers, and craftsmen are underrepresented and laborers, students and unemployed are overrepresented in the accidents.
3. Motorcycle riders with **previous recent traffic** citations and accidents are overrepresented in the accident data.
4. The motorcycle riders involved in accidents are **essentially without training**; 92% were self-taught or learned from family or friends. Motorcycle rider training experience reduces accident involvement and is related to reduced injuries in the event of accidents.
5. More than half of the accident-involved motorcycle riders had less than 5 months experience on the accident motorcycle, although the total street riding experience was almost 3 years. Motorcycle riders with dirt bike experience are significantly underrepresented in the accident data.
6. Almost half of the fatal accidents show **alcohol** involvement.
7. Passenger-carrying motorcycles are not overrepresented in the accident area.
8. The large displacement motorcycles are underrepresented in accidents but they are associated with higher injury severity when involved in accidents.
9. Motorcycles equipped with fairings and windshields are underrepresented in accidents, most likely because of the contribution to **conspicuity** and the association with more experienced and trained riders.
10. Motorcycle riders in these accidents were significantly without motorcycle license, without any license, or with license revoked.
11. Motorcycle **modifications** such as those associated with the semi-chopper or cafe racer are definitely overrepresented in accidents.

## APPENDIX C: HI HELMET USE RATES

### APPENDIX 1

### 2002 STATEWIDE MOTORCYCLE HELMET USE RATES

| FACTORS | DRIVER | | | | PASSENGER | | | | TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Not Helmeted | Helmeted | Total | % Driver Helmeted | Not Helmeted | Helmeted | Total | % Passenger Helmeted | Total Helmeted | Total Observed | % Total Helmeted |
| **COUNTY** | | | | | | | | | | | |
| Oahu | 497 | 457 | 954 | **47.90%** | 69 | 32 | 101 | **31.68%** | 489 | 1055 | **46.35%** |
| Maui | 52 | 24 | 76 | **31.58%** | 9 | 5 | 14 | **35.71%** | 29 | 90 | **32.22%** |
| Hawaii | 80 | 44 | 124 | **35.48%** | 8 | 5 | 13 | **38.46%** | 49 | 137 | **35.77%** |
| Kauai | 67 | 19 | 86 | **22.09%** | 20 | 2 | 22 | **9.09%** | 21 | 108 | **19.44%** |
| **Total** | **696** | **544** | **1240** | **43.87%** | **106** | **44** | **150** | **29.33%** | **588** | **1390** | **42.30%** |
| **VOLUME** | | | | | | | | | | | |
| Low Volume | 16 | 6 | 22 | **27.27%** | 1 | 1 | 2 | **50.00%** | 7 | 24 | **29.17%** |
| High Volume | 680 | 538 | 1218 | **44.17%** | 105 | 43 | 148 | **29.05%** | 581 | 1366 | **42.53%** |
| **TIME PERIODS** | | | | | | | | | | | |
| 7:00 AM - 10:59 AM | 166 | 96 | 262 | **36.64%** | 29 | 9 | 38 | **23.68%** | 105 | 300 | **35.00%** |
| 11:00 AM - 2:59 PM | 285 | 154 | 439 | **35.08%** | 46 | 17 | 63 | **26.98%** | 171 | 502 | **34.06%** |
| 3:00 PM - 6:59 PM | 245 | 294 | 539 | **54.55%** | 31 | 18 | 49 | **36.73%** | 312 | 588 | **53.06%** |
| **WEATHER** | | | | | | | | | | | |
| Sunny | 584 | 402 | 986 | **40.77%** | 82 | 32 | 114 | **28.07%** | 434 | 1100 | **39.45%** |
| Partly Cloudy | 71 | 114 | 185 | **61.62%** | 20 | 10 | 30 | **33.33%** | 124 | 215 | **57.67%** |
| Cloudy | 41 | 28 | 69 | **40.58%** | 4 | 2 | 6 | **33.33%** | 30 | 75 | **40.00%** |
| **SPEED** | | | | | | | | | | | |
| below 25 MPH | 263 | 111 | 374 | **29.68%** | 45 | 17 | 62 | **27.42%** | 128 | 436 | **29.36%** |
| 25 MPH - 34 MPH | 93 | 69 | 162 | **42.59%** | 13 | 4 | 17 | **23.53%** | 73 | 179 | **40.78%** |
| 35 MPH - 44 MPH | 185 | 182 | 367 | **49.59%** | 26 | 12 | 38 | **31.58%** | 194 | 405 | **47.90%** |
| 45 MPH - 54 MPH | 101 | 103 | 204 | **50.49%** | 18 | 6 | 24 | **25.00%** | 109 | 228 | **47.81%** |
| 55 MPH | 54 | 79 | 133 | **59.40%** | 4 | 5 | 9 | **55.56%** | 84 | 142 | **59.15%** |
| **LANES** | | | | | | | | | | | |
| one lane | 123 | 68 | 191 | **35.60%** | 22 | 9 | 31 | **29.03%** | 77 | 222 | **34.68%** |
| two lanes | 279 | 141 | 420 | **33.57%** | 43 | 13 | 56 | **23.21%** | 154 | 476 | **32.35%** |
| three lanes | 176 | 242 | 418 | **57.89%** | 20 | 14 | 34 | **41.18%** | 256 | 452 | **56.64%** |
| four lanes | 81 | 65 | 146 | **44.52%** | 10 | 5 | 15 | **33.33%** | 70 | 161 | **43.48%** |
| five lanes | 37 | 28 | 65 | **43.08%** | 11 | 3 | 14 | **21.43%** | 31 | 79 | **39.24%** |
| **WEEK** | | | | | | | | | | | |
| weekday | 261 | 313 | 574 | **54.53%** | 42 | 10 | 52 | **19.23%** | 323 | 626 | **51.60%** |
| weekend | 435 | 231 | 666 | **34.68%** | 64 | 34 | 98 | **34.69%** | 265 | 764 | **34.69%** |

## APPENDIX D: HI Observational Findings of Helmet Use

### Research Background

The Department of Urban and Regional Planning, University of Hawaii at Manoa, conducted observational studies of helmet use among motorcycle and moped riders throughout Hawaii. The studies were conducted at 120 sites throughout the Hawaiian Islands.

Observational Findings

- The overall helmet use rate fell 43% in 1992 to 27% in 1995.
- Oahu has a greater percentage of helmet users (32%) than the neighbor islands (13%).
- Operators were most likely to use helmets later in the day.
- Greatest use of helmets occurred during the evening between 7:00 PM and midnight.
- Operators traveling at higher speeds were more likely to use helmets.
- Greatest overall helmet use occurred on freeways (55mph).
- Operators that traveled between 25 to 34mph had a lower use rate than those operators at high speed.
- Weekday use of helmets was higher than weekend use of helmets.
- Moped helmet use statewide is 15.6%.
- Motorcycle helmet use statewide is 26.64%.

## Motorcycle morbidity

*The number of motorcycle fatalities included in overall traffic deaths in Hawaii consistently ranks among the highest percentages annually in the country. Here are the numbers since 1993 (data unavailable for 1996):*

| Year | Motorcyclist fatalities | Percent of total traffic deaths | National ranking |
|---|---|---|---|
| 2000 | 18 | 13.7 | 4 |
| 1999 | 17 | 17.3 | 2 |
| 1998 | 21 | 17.5 | 1 |
| 1997 | 14 | 10.7 | 3 |
| 1995 | 21 | 16.2 | 1 |
| 1994 | 29 | 23.8 | 1 |
| 1993 | 26 | 19.4 | 1 |

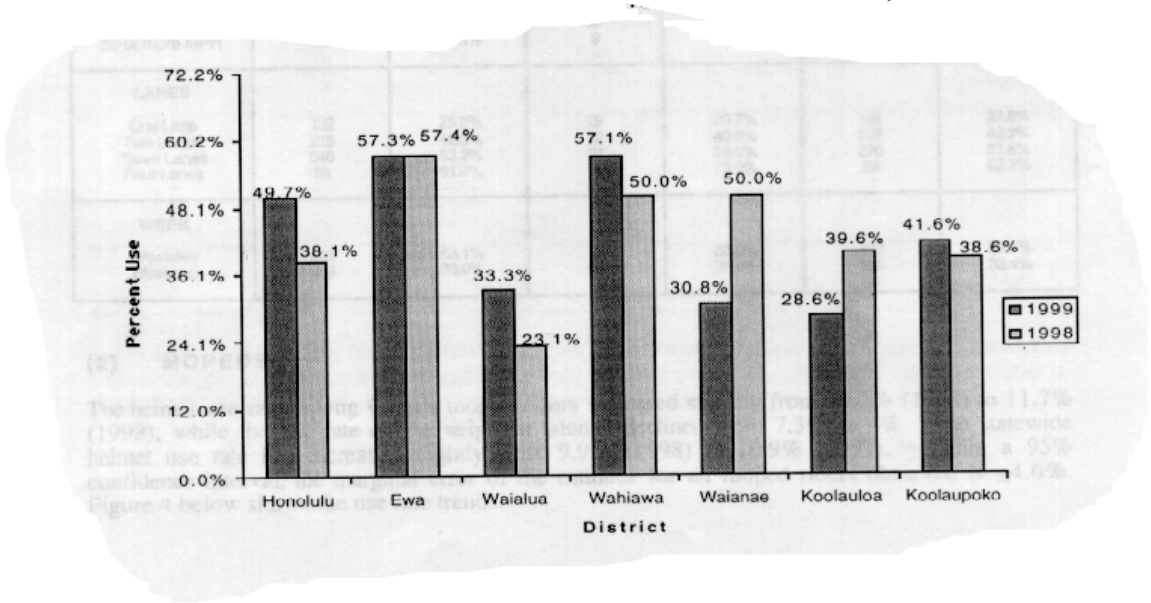
Source: National Highway Traffic Safety Administration STAR-BULLETIN

## APPENDIX D: HI FACTS CONTINUED

**TABLE 1**
MOTORCYCLE HELMET USE BY ISLANDS, 1999

| FACTORS | OPERATORS | | PASSENGERS | | TOTAL | |
|---|---|---|---|---|---|---|
| | Total Observed | Percent Helmeted | Total Observed | Percent Helmeted | Total Observed | **Percent Overall Helmeted** |
| **Island** | | | | | | |
| Oahu | 602 | 49.7% | 53 | 35.9% | 655 | 48.6% |
| Maui | 106 | 25.2% | 21 | 23.8% | 127 | 25.2% |
| Hawaii | 32 | 40.6% | 2 | 50.0% | 34 | 41.2% |
| Kauai | 8 | 50.0% | 3 | 0.0% | 11 | 36.4% |
| Neighbor Islands | 146 | 30.1% | 26 | 23.1% | 172 | 29.1% |
| State | 748 | 45.9% | 79 | 31.7% | 827 | 44.5% |

**FIGURE 3**
**MOTORCYCLE HELMET USE BY DISTRICTS ON OAHU, 1998 AND 1999**



## APPENDIX E: NOPUS & CODES TABLES

**National Occupant Protection Use Survey**
**Moving Traffic Study, Fall 2000**
**Estimates and Sampling Errors in Percentages**

| Type | Northeast | | Midwest | | South | | West | | Overall | |
|---|---|---|---|---|---|---|---|---|---|---|
| Driver | 82 | 8.8 | 66 | 8.9 | 63 | 12.1 | 80 | 9.7 | 72 | 5.2 |
| Passenger | 60 | 26.4 | 61 | 23.1 | 58 | 17.7 | 84 | 21 | 62 | 9.9 |

Source: DOT, NHTSA, Feb 2001

This Research Note expands the CODES analyses to include consideration of the effect of helmet legislation in the CODES states.

**Distribution of the Helmet Cases in Six of the Seven CODES States**

Helmet data, obtained from six (Hawaii, Maine, Missouri, New York, Pennsylvania, Wisconsin) of the seven CODES states and updated with new data since the Report to Congress to include an additional 137 cases, consisted of a total of 10,490 motorcycle riders involved in crashes for whom helmet use was known. Presence of helmet legislation was not a funding criterion for CODES.

As expected, universal helmet use legislation has a strong effect on actual helmet use. Table 1 shows the differences in reported motorcycle helmet use rates for riders involved in crashes in the CODES states with and without helmet legislation.

**Table 1**
**Reported Helmet Use Rate for Six CODES States With and Without Universal Helmet Use Law**

| **With Law** | **Missouri** | **New York** | **Pennsylvania** |
|---|---|---|---|
| All Riders | 94% | 98% | 80% |
| **Without Law** | **Hawaii** | **Maine** | **Wisconsin** |
| All Riders | 30% | 49% | 33% |

National Center for Statistics and Analysis ◆ 400 Seventh St., S.W., Washington, D.C. 20590

Source: DOT, NHTSA, Jan 1998
Data from CODES, Crash Outcome Data Evaluation System

## APPENDIX F: MOTORCYLE ORGANIZATIONS' POSITIONS ON HELMET USE

### The Alliance of Bikers Aimed Toward Education (A.B.A.T.E.)

**POSITION:**
The Alliance of Bikers Aimed Toward Education (A.B.A.T.E.) of Pennsylvania encourages the voluntary use of helmets by adult motorcyclists as part of a comprehensive motorcycle safety program. We do not support laws mandating use of helmets.

A.B.A.T.E. of Pennsylvania is not in favor of mandatory helmet use laws for minors. While young riders may lack the maturity to make an informed decision regarding the use of a helmet, A.B.A.T.E. of Pennsylvania believes it is the responsibility of the parents to make the decision for them and not a legitimate function of the government.

A.B.A.T.E. of Pennsylvania believes that accident prevention and avoidance are more important to significantly reducing injuries and fatalities than any mandatory equipment laws.

**DISCUSSION:**
It is generally recognized and acknowledged that a motorcycle helmet is a legitimate piece of safety equipment under optimal circumstances. Unfortunately, all crashes involving motorcycles do not fit the controlled laboratory conditions under which helmets are tested. The presence of a number of variables can create situations in which a user can be severely injured. Improper fit, rapid deceleration, the angle of impact, and roadside hazards which are unlike those found in a D.O.T. Laboratory can all contribute to severe injuries that would not have been incurred by a helmetless rider. Because the possibility of death or injury as a result of helmet use exits, A.B.A.T.E. believes the individual rider is best suited to weigh the benefits and risks associated with that use. The amount of risk one accepts in any activity is a matter of informed personal choice.

# AMA position in support of voluntary helmet use

The American Motorcyclist Association (AMA) has always encouraged the use of helmets, gloves, sturdy footwear, and protective garments in general, as part of a comprehensive motorcycle safety program to help reduce injuries and fatalities in the event of a motorcycle accident.
The Association will not oppose laws requiring helmets for minor motorcycle riders and passengers. It believes that many young motorcyclists and passengers may lack the maturity to make an informed decision regarding the use of motorcycle helmets. Although the Association strongly encourages helmet use by all motorcyclists, it maintains a long-standing fundamental belief that adults should continue to have the right to voluntarily decide when to wear a helmet.

## APPENDIX F: HELMET USE RATES

### Table 2-29: Safety Belt and Motorcycle Helmet Use (percent)[a]

| | 1994 | 1996 | 1998 | 1999 | 2000 | 2001 | 2002 |
|---|---|---|---|---|---|---|---|
| **OVERALL Safety Belt Use** | **58** | **61** | **69** | **67** | **71** | **73** | **75** |
| Drivers | 59 | 62 | 70 | 67 | 72 | 74 | 76 |
| Passengers | 55 | 59 | 65 | 64 | 68 | 72 | 73 |
| **Passenger cars** | **63** | **64** | **71** | **70** | **74** | **76** | **77** |
| Drivers | 64 | 65 | 72 | 71 | 75 | 77 | 78 |
| Passengers | 59 | 62 | 68 | 66 | 70 | 74 | 74 |
| **Light trucks[b]** | **50** | **56** | **66** | **62** | **68** | **69** | **73** |
| Drivers | 51 | 58 | 67 | 62 | 69 | 70 | 73 |
| Passengers | 49 | 53 | 61 | 60 | 65 | 69 | 72 |
| **Motorcycle Helmet Use[c]** | **63** | **64** | **67** | **N** | **71** | **N** | **58** |
| Operators | 67 | 66 | 64 | N | 72 | N | 59 |
| Riders | 54 | 58 | 84 | N | 62 | N | 48 |

**KEY:** N = data do not exist.

[a]Seat belt use is of Fall each year except in 1999 (December), 2001 (June), and 2002 (June). Motorcycle helmet use is of Fall each year except in 2002 (June).

[b] Includes pickup trucks, vans, minivans, and sport utility vehicles.

[c] In 1994, operators and riders were counted as helmeted if wearing any type of helmet. Since then, only those operators and riders wearing safety helmets that met U.S. Department of Transportation (DOT) standards were counted. Those safety helmets that do not meet DOT standards were treated as if the operator/rider were not wearing a helmet.

**Motorcycle helmet use:**
1994-98: U.S. Department of Transportation, National Highway Traffic Safety Administration, Research Note, Observed Safety Belt Use in 1998 (Washington, DC: September 1999), Internet site http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/RNotes/1999/98obbelt.html as of January 2003, table 3.
2000, 2002: U.S. Department of Transportation, National Highway Traffic Safety Administration, Safety Belt and Helmet Use in 2002 -- Overall Results, DOT HS 809 500 (Washington, DC: 2002), table 6, Internet site http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/Rpts/2002/809-500.pdf as of January 2003. Data are from the National Occupant Protection Use Survey (NOPUS).

Source: Bureau of Transportation Statistics

## APPENDIX G: LSU/Effect of Helmet Use

While there are several factors possibly contributing to the increase in fatality rates, helmet use is of particular interest because of the change in the law in Louisiana. In many cases the helmet use is unknown; therefore, Table 2 (below) shows the helmet-usage rate in motorcycle crashes from 1999 to 2002 including only the documented cases. For instance, in 1999, the percentage of drivers in motorcycle crashes wearing a helmet was 74% based on documented cases of helmet usage; but, helmet usage declines considerably after 1999 to about 50%. There is no information readily available for the unknown helmet-use cases for 1996 to 1998.

***Table 1: Fatality Rate vs. Percentage Helmet Use 1999 to 2002***

| Year | # killed | # Injured | # of Motor-cycles in Crashes | Helmet Used | Helmet Not Used | Helmet Use Unknown | % Helmet Use based on Known Cases | Fatal. per 100 Crashes |
|---|---|---|---|---|---|---|---|---|
| **1999** | 42 | 835 | 1,138 | 572 | 206 | 360 | 74% | 3.7% |
| **2000** | 58 | 1,071 | 1,388 | 490 | 501 | 397 | 49% | 4.2% |
| **2001** | 63 | 1,159 | 1,528 | 497 | 636 | 395 | 44% | 4.1% |
| **2002** | 62 | 1,214 | 1,585 | 598 | 589 | 398 | 50% | 3.9% |
| **1 Year Change** | -2% | 5% | 4% | 20% | -7% | 1% | 7% | -0.2% |
| **3 Years Change** | 48% | 45% | 39% | 5% | 186% | 11% | -23% | 0.2% |

Table 3 (below) shows the fatalities and injuries of **drivers only** for the crashes with known helmet use; this excludes all unknown cases in the calculations. It is evident from Table 3 that, for 1999 to 2002, on the average, the fatality rate tends to be 2.4 percentage points higher for motorcycle drivers not wearing a helmet and the severe injuries tend to be on the average 3.80 percentage points higher. When these percentages are applied to all motorcycle drivers, these percentages amount to 46 more fatalities and 73 more severe injuries than expected for motorcycle riders wearing helmets over the past four years. This means that, had all motorcycle drivers worn helmets when they crashed, we would have

likely seen only 72 fatalities instead of 118 and 149 severe injuries instead of 222 over the past four years. It is important to recognize that crashes documented for helmet usage form the basis for these estimates. There are about 25% of crashes with unknown helmet use. For instance, if all of the drivers in crashes with unknown helmet use were actually wearing helmets, the average fatality rate for helmet use would have been as low as 2.5% instead of the 3.7%. However, if all of the unknown cases were to be added to the "without helmet" column, the average fatality rate for crashes without helmet use could be as low as 3.7% instead of 6.1% over the past four years. In any case, it is evident that the fatality rate of motorcycle drivers without helmets is considerably higher than the fatality rate of motorcycle drivers with helmets. For 1996 to 1998 the fatality rate of motorcycle drivers without a helmet (2.0%) was somewhat lower than the fatality rate of motorcycle drivers with a helmet (3.2%). However, this difference (-1.2%) is small when compared to the 2.4% difference for 1999 to 2002. Note that severe injury data are only presented for 1999 to 2002 because the injury categories changed from five categories to three with the new crash report revision in 1999.

***Table 2: Fatalities and Injuries by Helmet Usage***

| | Fatal | | All | | Percentage | |
|---|---|---|---|---|---|---|
| **Year** | **With Helmet** | **Without Helmet** | **With Helmet** | **Without Helmet** | **With Helmet** | **Without Helmet** |
| 1996 | 15 | 4 | 489 | 355 | 3.1% | 1.1% |
| 1997 | 11 | 6 | 477 | 437 | 2.3% | 1.6% |
| 1998 | 22 | 11 | 519 | 309 | 4.2% | 3.6% |
| 1996-1998 | 48 | 21 | 1485 | 1089 | 3.2% | 2.0% |
| 1999 | 25 | 15 | 572 | 206 | 4.4% | 7.3% |
| 2000 | 21 | 29 | 490 | 501 | 4.3% | 5.8% |
| 2001 | 17 | 36 | 497 | 636 | 3.4% | 5.7% |
| 2002 | 17 | 38 | 598 | 589 | 2.8% | 6.5% |
| 1999-2002 | 80 | 118 | 2157 | 1932 | 3.7% | 6.1% |
| | **Severe Injury** | | **All** | | **Percentage** | |
| **Year** | **With Helmet** | **Without Helmet** | **With Helmet** | **Without Helmet** | **With Helmet** | **Without Helmet** |
| **1999** | 53 | 30 | 572 | 206 | 9.3% | 14.6% |
| **2000** | 37 | 56 | 490 | 501 | 7.6% | 11.2% |
| **2001** | 26 | 59 | 497 | 636 | 5.2% | 9.3% |
| **2002** | 50 | 77 | 598 | 589 | 8.4% | 13.1% |
| **Total** | 166 | 222 | 2157 | 1932 | 7.7% | 11.5% |

**SOURCE: LA Traffic Crash Reports http://lhsc.lsu.edu**

## APPENDIX H: Partners in Progress: An Impaired Driving Guide for Action DOT/NHTSA



### I. PUBLIC EDUCATION

**STRATEGY**

***Develop and implement a comprehensive, balanced public awareness campaign focused on safe and healthy lifestyles.***

**BACKGROUND**

In the early 1980s the nation learned about the benefits of public awareness. MADD, the Presidents Commission on Drunk Driving, and others successfully raised the public consciousness about the issue. The result was a dramatic increase in exposure, legislation, enforcement, sober driving behavior, as well as an almost immediate reduction in alcohol-related fatalities.

Media coverage of impaired driving problems has declined in recent years. This is, in part, because of competition from other issues: crime, domestic violence, AIDS, terrorism, and airline safety, to name just a few. While media coverage is declining, underage drinking and impaired driving remain serious societal problems. For example, a recent study on drug use indicates that teens are drinking more at a younger age.

Increasing media attention to the issue is essential for elevating the public's awareness and knowledge to a level that will bring results. At the same time, we must work together to ensure a balance between public health messages promoting safe and healthy lifestyles and commercial alcohol messages.

**ACTION**

**(I-a)**

***Develop campaigns and messages with appeal to high risk target populations, such as 21-34 year 014 high BAC offenders and under age 21.***

BENEFITS

- Targeted campaigns reach more of the population at risk of involvement in alcohol related crashes.
- More than half of the drivers involved in alcohol related fatalities are between the ages of 21 and 34. This proportion has remained about the same for at least the past ten years.
- High BAC offenders are more likely to be involved in crashes. High BAC's are an early indication that an individual has a substance abuse or dependency problem; hence, even when apprehended and punished, they are more likely to drive impaired time after time.

- "The average BAC among fatality injured drinking drivers is 0.18; they account for nearly two-thirds of all alcohol related driver fatalities - drivers with BACs

in excess of 0.15 account

for 65% of drinking driver fatalities" (Simpson, et al., 1996)

· Impressive gains have been made in alcohol related statistics regarding youth under the legal drinking age. However, drivers under age 21 continue to be over represented in crashes. Recent studies show that the age of drinking onset is growing younger and that youth are drinking more alcohol than in the past. It is also of note that educators expect a 25 percent increase in ninth through twelfth grade students over the next ten years.

ACTION

(I-b)

Improve the balance of media messages related to alcohol impaired driving.

Three specific actions are recommended for achieving a more appropriate balance in media messages.

A. Increase the relevance and reach of health and safety messages through increased availability of public service announcements, counter-advertising and media literacy

B. Enlist the expertise of the alcohol, advertising and social marketing industries to reach high-risk populations with health and safety messages, especially those age 21-34 and underage youth.

C. Decrease the advertising and promotional messages that glamorize or trivialize drinking and driving.

BENEFITS

· Improving the balance between health and advertising messages represents a united front among a broad base of partners.

· By utilizing the expertise that already exists, resources available for targeting messages will be enhanced.

ACTION

(i-c)

Recreate public concern and outrage about the senseless deaths and injuries caused by impaired driving.

To implement this action item, the media must be enlisted to routinely address highway safety in their programming and news reporting. Specific initiatives include:

· Solicit major news outlets to provide a daily "body count" on the number of fatalities reported. Include statistics on impaired driving, safety belt use and other issues.

· Craft innovative messages that increase the feelings of vulnerability for people in targeted subgroups. Provide specific actions that individuals can take to reduce their vulnerability

· Design media and outreach campaigns for entire communities.

· Introduce highway safety and impaired driving messages into regular entertainment programming.

BENEFITS

· Implementing these actions will provide a dramatic increase in exposure to the issue.

· Exposure will increase opportunities for public education about the dangers of impaired driving.

Exposure will increase public support for legislation, enforcement and alcohol treatment programs.

## REFERENCE MATERIALS


Advocates for Highway and Auto Safety. (2002). ADVOCATES ALERT: ACTION NEEDED ON MOTORCYCLE HELMETS. Washington D.C. http://www.saferoads.org/ActionAlert/aa-CAhelmet3-26-02.htm

American Association of Orthopedic Surgeons Position Statement Helmet Use by Motorcycle Drivers and Passengers, and Bicyclists. http://www.aaos.org/wordhtml/papers/position/1110.htm

American Motorcycle Association; AMA Position in Support for Voluntary Motorcycle Helmet Use. http://www.amadirectlink.com/legisltn/positions/helmet.asp

Bureau of Transportation Statistics. (2002). Table 2-29: Safety Belt and Motorcycle Helmet Use (percent). http://www.bts.gov/publications/national_transportation_statistics/2002/html/table_02_29.html

Helmet 101; Biker Facts. http://home.tampabay.rr.com/ourplace/Biker/newlaw.htm

Hurt, H.H., Ouellet, J.V. and Thom, D.R. (1981). *Motorcycle Accident Cause Factors and Identification of Countermeasures,* Volume 1: Technical Report. Traffic Safety Center, University of Southern California, Los Angeles, California 90007, Contract No. DOT HS-5-01160, January 1981 (Final Report).

Insurance Institute for Highway Safety. (2003). Highway Data Loss Institute. Helmet Use Laws. http://www.hwysafety.org/safety%5Ffacts/state%5Flaws/helmet%5Fuse.htm

Insurance Journal; AAI Says Pa. Motorcycle Helmet Legislation Headed for Wrong Turn July 2, 2003. .http://www.insurancejournal.com/news/newswire/east/2003/07/02/30334.htm

Louisiana Highway Safety Commission. (2002). An Analysis of Motorcycle Crashes. **http://isds.bus.lsu.edu**

National Center for Statistics and Analysis (1998) Further Analysis of Motorcycle Helmet Effectiveness Using CODES linked data. Washington, DC. http://ntl.bts.gov/data/codes_mc.pdf

National Council of State Legislatures; NCLS Transpiration Reviews Motorcycle Safety by Melissa Savage and Irene Kawanabe; July 2001. http://www.ncsl.org/programs/esnr/899trnrv.htm

National Highway Traffic Safety Administration Motorcycle Safety Program Motorcycle Helmet Laws and the Use of FMVSS 218 Compliant Helmets January 2003-10-01. http://www.nhtsa.dot.gov/people/injury/pedbimot/motorcycle/motorcycle03/injury.htm

Rocky Mountain Harley-Davidson, Littleton Colorado, www.rmh-d.com, website page: "Selecting a Helmet."

State of Hawaii Department of Transportation; Results of the 2002 Helmet Use Survey; Department of Urban and Regional Planning; State of Hawaii. http://www.state.hi.us/dot/publicaffairs/safecommunities/2002survey/helmet/helmet2002.pdf

State of Hawaii Department of Transportation; Results of the 2003 Helmet Use Survey; Department of Urban and Regional Planning; State of Hawaii.

The Alliance of Bikers Aimed Toward Education (A.B.A.T.E.) of Pennsylvania Position Paper on Motorcycle Safety and Awareness (2000). http://www.abatepa.org/abate/legislation/lobbying/safety.pdf

U.S. Department of Transportation, NHTSA. (1997). Partners for Progress: An Impaired Driving Guide for Action; Washington, DC: National Highway Traffic Safety Administration. http://www.nhtsa.dot.gov/people/injury/alcohol/partnersprog/public.html

U.S. Department of Transportation, NHTSA. (2003). Traffic Safety Facts; Motorcycle Helmet Use Laws, Volume I; Washington, DC: National Highway Traffic Safety Administration. http://www.nhtsa.dot.gov/people/injury/New-factsheet03/MotorcycleHelmet.pdf

U.S. Department of Transportation, NHTSA. Motorcycle Helmets – The Facts of Life; Campaign Safe & Sober; Washington, DC: National Highway Traffic Safety Administration. http://www.nhtsa.dot.gov/people/outreach/safesobr/OPlanner/protection/cycle.html

U.S. Department of Transportation, NHTSA. (1997) National Agenda for Motorcycle Safety, 1999. Page 27; Washington, DC: National Highway Traffic Safety Administration. http://www.ahainc.com/nams/PDFs/NAMS_03.pdf

U.S. Department of Transportation, NHTSA. (2002) National Occupant Protection Use Survey (NOPUS); Moving Traffic Study; Washington, DC: National Highway Traffic Safety Administration.

U.S. Department of Transportation: National Highway Traffic Safety. Administration Universal Motorcycle Helmet Laws Reduce Costs to Society. http://www.nhtsa.dot.gov/people/injury/pedbimot/safebike/costs.html

U.S. Department of Transportation: National Highway Traffic Safety. Administration A Comprehensive Guide to Motorcycle Safety. http://www.nhtsa.dot.gov/people/injury/pedbimot/safebike/approach.html